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ABSTRACT

Traditional sociological conceptions of human group development and early human group behavior are critiqued in light of anthropological, biological, and physiological data. The objective of the study was to identify shortcomings of sociological research when non-sociological data is consistently ignored. Review of sociological studies of human behavior indicates that sociologists generally do not use historical evidence as a basis of their assumptions and that they do not study non-human animals to explain human behavior. Further, sociologists have been consistently negligent in establishing a framework which is grounded in data on the origin of human group life. Specific inadequacies can be found in sociological studies of the cultural role of language: relationships between the developments of bipedalism, toolmaking, and communication: division of labor in hunting and gathering societies: and development of ritualistic and other specialized behaviors. The conclusion is that sociology will become a more valid academic discipline if sociologists integrate scientific data from other areas into their research. (DB)

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BIOLOGY, CULTURE AND SOCIETY: AN EXPLANATION OF HUMAN DEVELOPMENT

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ABSTRACT FOR

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The "nature of man" has received much attention by sociologists, e.g., Talcott Parsons. However, it is the case that sociobiologists (and etholgists) have been debating the origins of human group life and behavior (K. Lorenz:1966; R. Ardrey:1966; A. Alland:1972; D. Barrish:1977; M.F.A. Montagu:1968; P.L. van den Berghe:1975; etc.). That is, sociology which claims to be a scientific discipline tends to be both ahistorical and adata oriented in its approach to human group development and early human group behavior.

This paper first critiques this traditional foundation within sociology. Next, a brief anthropological/biological/social discussion of the genesis of human group life is presented. This is followed by raising questions about the possible consequences which may occur if the trend of ignoring current nonsociological data about our past and present continues.

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INTRODUCTION

There are currently two extremes in explaining human group behavior. First, the sociologist generally makes assumptions about human behavior, for example, the origin of human groups, with no historical evidence. Second, often the ethologist studies non-human animals in order to explain human behavior. Both approaches are highly suspect. The latter because its validity is questionable. That is, though we may share similar looking behaviors with non-human animals, can we assume that the behaviors are really isomorphic with one another. The former because as a discipline, sociology which so highly values "data" has remained remarkably distant and resistant to available data regarding the development of the human group and human group behavior (to name but a few: A. Alland, Jr.:1972; A. Halsey: 1977; R. Leakey and R. Lewin:1977, 1978; E. O. Wilson:1975, 1978; I. Eibl-Eibesfeldt;1977; R. Fox:1971; J. Lancaster: 1978).

It is important to elaborate the ramifications of this dicotomy. Each perspective, because of its underlying assumptions, results in a very different interpretation of

humans and human group life. Assumptions about our past, present and future are affected. According to Lorenz (1966), for example, humans are doomed to aggressiveness because of genetic composition. Such strict adherence to a particular framework locks one into "seeing" the world in a particular way. Certain data are attended to and filtered through and others omitted. The conflict theorist, for example, "sees" a world filled with dissonant events, while the functionalist "sees" one striving for homeostasis. Both are looking at the same world.

Both positions (of the sociologist and the ethologist) are extreme and the truth most likely lies somewhere between them. Since we here are concerned with sociology, this paper will critique only the traditional sociological perspective of human group origins and human group behaviors. Current data will be examined and offered as evidence that sociology, as it exists today, has little knowledge about such matters. Special attention will be given to the origin of the human group and human group behavior.

SOCIOLOGY IN GENERAL

Sociologists have been consistently negligent in establishing a framework which is grounded in data on the origin of the human group life. The paradox within the discipline is that sociology prides itself as being scientific (Sjoberg

and Nett:1968), while concomitantly accepting the origin of groups, ipso facto, as groups that exist.

The theory of the origin of group life in traditional sociology is examined as "the nature of man." This domain is based upon the philosophical arguments of, for example, Hobbes, Hume, Locke, Marx (Parsons:1937). These individuals raise interesting philosophical issues. However, they themselves were making assumptions at a time when relevant data was unavailable. On the other hand, Herbert Spencer did make use of "data." He corrupted Darwin's concept of natural selection to justify the existence of the rich with the concept of the "survival of the fittest."[1]

Students are not taught current anthropological, biological, and/or physiological material that may be appropriate. Introductory texts such as Sociology by Ritzer, Introduction to Sociology by Douglas, Foundations of Modern Sociology (to name but a few) do not give any biological explanation for behavior or any evolutionary data on the origin of groups. Robertson's Introduction to Sociology is one of the few texts which tries to integrate the biological issue with contemporary theory. What does it mean, for example, for sociologists to discuss the origin of language and its importance to group life by flaccidly critiquing the Sapir-Whorf hypothesis and then stating that "language is the keystone of culture"

(Robertson:70)? It means that sociologists remain intellectually isolated in an academic world which is teeming with data. Holloway, for example, with the use of his latex molds of skulls, has demonstrated that Homo habilis had a Broca's area.[2] This means that our small direct ancestor, almost three million years ago, may have been "talking." To be sure, the speech would not have been as clear as modern humans due to anatomical differences (it may have been slurred)---but speech could have occured. This is interesting because communication, toolmaking (for hunting, an organized activity) and bipedalism have traditionally been thought as developing together. However, Mary Leakey's recent discovery of bipedal footprints dated four million years ago indicate an upright, but small-brained individual.[3] In addition, we have yet to discover tools that old. So how do these pieces fit? Why and how might have culture developed?

THE DEVELOPMENT OF HUMAN GROUP LIFE AND CULTURE

The Origin of the Family by Engles is interesting, but full of inaccuracies. And, Brownmiller's theory on the origin of male/female relationships leads us to wonder how any one survived.[4] Current data varies greatly with these theories.

Ramapithecus is considered to be our oldest most direct

ancestor. Though the dating of this distant relative lies somewhere between 12 and 15 million years BP (before present), its grinded-down teeth remains provide a clue to its social life. Leakey explains that there is a significant lapse of time between the appearance of the first and second, and the second and third molars. The lapse is indicated by the amount of the tooth which has been grinded down. This time lag suggests a prolonged childhood (38b). A prolonged childhood has social implications. We know that in non-human as well as in human primates, a period of extended dependency means that socially the children must be protected and guided by the adults if they are to survive. At the very least, it appears that Ramapithecus lived in groups of social, cooperating individuals.

Some suggest that hunting was the stimulus to the formation of group life and culture. Ramapithecus was not totally bipedal and it has been discovered that bipedalism preceded toolmaking.[5] The first stone tools do not appear until about three million years ago. And, these were very crude. This is not to suggest that Ramapithecus did not make or use any tools. Organic impliments would have disappeared through time and bone tools have not been found. In addition, the teeth of Ramapithecus indicate that its diet was omnivorous, consisting basically of a vegetarian diet, occasionally supplemented by meat. Its canines are small and other teeth

are flattened by wear which indicates a tough, fiberous food was grinded down.

Early homo life date back almost three million years. These individuals are usually portrayed as hunters who took their kill off to a cave for a feast. This is not, however, an accurate reconstruction of early hominid activity. The following features, taken together as a whole, present a very different picture and interpretation of early group life.

First, Homo habilis (handy person) created the Oldowan tool tradition which consisted of stone tools and crude flakes. This tradition dates from about 2.5 million BP, but it did not remain static. By about 1.5 million years BP there were 10 identifiable tools in the kit. This is referred to as developed Oldowan technology.

At this time, a new tool technology is identified, the Acheulean tradition which is associated with Homo erectus. Both traditions coexisted, but remained distinct from one another for half a million years. These people shared the same environmental resources and must have been cognizant of each other. What are the ramifications of this parallel existence? To begin with, at the very least, the developed Oldowan and Acheulian knappers had a firm grasp of their work. The patterns are consistent and the materials purposely chosen. Though their social life was much simpler

than even most contemporary tribal life, "...there is... the real possibility that a self-awareness" existed (Leakey: 103a), that is, that the individuals had a sense of group identification. Since chimpanzees have a sense of self-awareness[6] and have smaller brains than early hominids, it is reasonable to accept Leakey's proposition. That is, why should we expect less from our bigger brained ancestor than from a chimpanzee?

Next, humans are generally portrayed as hunter-gatherers, with tools developed for hunting which would lead to sharing and greater social cohesion. Early tool kits have been assumed to be part of a highly carnivorous and cannibalistic existence. However, experiments by Robert Brain in which he "...monitored the effect of both weathering and scavengers on collections of animal bones" (Leakey:96a) indicate that crushed fossils found in caves are the result of left overs from non-human animal meals. Evidence suggests that early hominids did not live in caves. They could not compete with the big animals that dwelled within them.

In addition, hunting with early tools would have been a high-risk, low return activity. Nor could early hominids have competed successfully with non-human scavengers in trying to obtain meat killed by other animals. Early humans were neither big nor swift. Gathering, on the other hand, is fairly simple. It requires a digging stick, a flint to

sharpen the stick, and something in which to gather the food. The skill in gathering lies in one's knowledge of food sources which involves a cognitive map of space and time. Far from being great hunters, early hominids were most likely great gatherers (Leakey:1978). They were, as Leakey suggests, gatherer-hunters, not hunter-gatherers.

It is more likely that gathering lead to social cohesion with hunting as a secondary activity in the beginning. This type of mixed economy points to a group with a division of responsibilities and to individuals who cooperated and shared with one another. Hunting, for example, would have been a very dangerous activity for the lone individual. And, why would any individual hunt with a group if only one or two participants could enjoy the meat?

Third, these activities also imply "postponed consumption" (Leakey:139b). That is, rather than eating as one gathered or hunted, food was brought back to a central location and shared. This is efficient and it leaves time for leisure---perhaps for giving serious abstract thought to the world in which one lived. It is, for example, the Acheulean individual(s) who invented fire. An invention which would have kept away non-human predators and allowed these hominids to move into caves. Cave dwelling itself may have served as a catalyst for closer human relationships. That is, for example, living in an enclosed space may have

required more cooperation and sharing. Early humans shared and perhaps this is the hallmark of "what made us human" (Leakey:133b).

Fourth, early groups consisted of about 25 individuals.[7] "Early Pleistocene campsites (two million years ago) were occupied by about 25 individuals" (Leakey:124b). In order to maintain themselves, the bands probably practiced exogamy, much as bands do today. Cooperation would have been necessary (and this also suggests a communication system). There is no reason to suppose that early humans stole their mates from other bands. Even non-human primates, as chimpanzees, practice exogamy.[8] Contacts between early human bands permitted gene flow as well as cultural continuity between people. There was technical continuity of the Acheulean tradition over a wide area of the world: Africa, parts of Europe, and India.

Fifth, about 100,000 years ago, the Mousterian tradition began and lasted for about 60 thousand years. There was the emergence of specialized behavior patterns: sedentism, and for the first time there is evidence that human activity was not completely utilitarian. There was ritualistic behavior. Mousterian individuals buried their dead with flowers and tools which indicates that they not only had a concept of death, but of an afterlife as well.

These people, of which Neandertal is included, continued

to live in particular areas even as the climate got colder. They were big game hunters. They were skilled, courageous, and had to be highly cooperative to bring down a mammoth. In fact, they may have brought down many mammoths in a short period of time. There is evidence from cave sites that they stockpiled food. This indicates a sense of time and concern for the future welfare of the group.

Last, the Upper Paleolithic, which lasted from about 40,000 to 10,000 years BP, was a time of specialization within any particular group and diversification when groups are compared, perhaps ethnic groups. The harpoon, microliths, the bow and arrow were invented and the jump and surround method of hunting was developed. These individuals used burins to engrave designs on bone and other materials, developed awls to make holes in wood, bone, shell, and skin; fashioned elaborate bone tools such as knives, pins, needles with eyes, and fish hooks. Within a single cultural tradition, different sites were occupied for different activities, for example, butchering, burial, residence. These groups, with a division of labor, were concerned not only with immediate and seasonal welfare, but also with artistic pursuits and ritualism. There were five distinct traditions in the old world and the new world was totally populated during this period. And, activities in the new world indicate large scale interchange occurring because materials are found long

distances from their origins, for example, Florida shells are found in Kentucky.

TODAY

Historically, group life was probably first based upon mother-infant bonding with attendent males concerned about group welfare in general. The trends were toward more systematic toolmaking, regular meat eating, a more organized hunt, broader and systematic food sharing, a distinct division of labor, and recognizable symbolic behavior. All of these activities require a great amount of cooperation and coordination among people.

It can also be argued that for the past million years or so, the most striking changes in humans has been in culture development, rather than in biological changes. However, cultural development did not develop apart from biological constraints. It was itself limited to genetic coding which provided basic instructions,but allowed for great variability. E. O. Wilson recently asserted:

> "Rather than specify a single trait, human genes prescribe the capacity to develop a certain array of traits. In some categories of behavior, the array is limited and the outcome altered only by strenuous training---if ever. In others, the array is vast and the outcome easily influenced" (56,57).

This point can be illustrated by the use of verbal and

non-verbal behavior. Darwin noted in the last century, and Paul Ekman and Eibl-Eibesfeldt have demonstrated in our time that there are universal facial expressions in humans, for example, the eyebrow flash. It is only with much cultural manipulation that these behaviors can be modified. On the verbal level, psycholinguists such as Roger Brown have shown that "children acquire language by a time table too precise and too short to be explained by simple memorization" (Wilson:1978) or by social interaction theories (stressed within sociology) alone.

Sociologists also devote much time in addressing issues such as delinquency, deviance, and the like. But, seldom do they look to nonsociological data as source material. The theoretical frameworks of, for example, Merton, Sutherland, Quinney are not based on hard data. On the other hand, Richard Restak has recently proposed that the abnormal development of pathways between the cerebellum and the limbic system during the first two years of life may result in a propensity for violent behavior. He cites the works of Prescott, a neuropsychologist at the National Institute of Child Health and Human Development, and Heath, a neuropsychiatrist at Tulane University. However, he adds that "To explain violence as entirely the result of a brain dysfunction is unrealistic and socially disastrous" (Restak: 1979). That is, social and non-social events must be

studied and integrated together.

CONCLUSION

Sociology, as an academic discipline, today lags behind other areas in presenting a fundamental basis for human group formation and human group behavior. Theorists as Marx, Spengler, Toynbee, and so on, are often referred too. Yet, these "schemes (have) come to little because their understanding of human nature had no scientific basis" (Wilson:1978).

As previously noted, human group life, for example, has a long history generally ignored by sociology. If sociology is to remain a relevant discipline, it must dispense with theories and theorists that are not grounded in "the real world," and it must integrate valuable information from other areas. Sociology, for example, continues to use the concept of race as a variable which has been abandoned by anthropology.[9] Biology and anthropolgy now use variables as blood proteins and markers to distinguish human groups from one another. Sociology cannot continue to practice "cerebral hygiene" without suffering the consequences of becoming an obsolete and useless discipline.

FOOTNOTES

[1]John Kenneth Galbraith has a fine episode on the genesis of Spencer's ideas and its effects on society in his series on public television.

[2]The Broca's area is concerned with the structure of speech and muscle movements of the face, lips, tongue, and larynx.

[3]It is also interesting to note that the footprints of the two individuals indicate that one preceded the other, with the second closely following the steps of the first. It is as almost to suggest the human quality of agreeing to wait some time period and then following.

[4]Brownmiller suggests that men raped women and the only way they could protect themselves was to allign onesself with a male. Contemporary chimpanzee society tells a different story. They do have flexible sexual relationships, but a female does not have to copulate with any male---and male chimpanzees do not rape females. Why should we expect our early ancestors to be such brutes as Brownmiller would have us believe. Evidence does not indicate that rape was the fashion and as Leakey has stated, "...it would have been evolutionary suicide if our ancestors had...converted every dispute into a potential murder. The costs whould have been very high, not only for the victims, but for murdererd too. Such an animal would not have survived."

[5]Mary Leakey's footprints have indeed been valuable. These individuals were bipedal, long before the first stone pebble tools show up.

[6]Current work with chimpanzees (the Gardners & Fouts with Washoe, Mandel with Lucy Temerlin, and Maurice Temerlin with Lucy, his chimp daughter) leaves no doubt to this point.

[7]Washburn has worked out a mathematical model, considering such variables as birth rate, infant/child mortality, incest taboos, territory needed per person, and cam up with 25 as a viable group size.

[8]Goodall has observed exogamous behavior in the chimpanzees at the Gombe Reserve.

[9]Mary Durham, Research Director of the VA at the University of Washington has recently concurred on this point (private communication). She used race as a variable in her Ph. D. dissertation on low-birthweight infants and concluded that "race" is not helpful in explaining differences. The arbitrary low-birthweight of 1500 grams chosen by the World Health Organization ingnores individual group adaptations where, for example, smaller infants may be normal.

BIBLIOGRAPHY

Alland, Jr., A. 1972 *The Human Imperative*. N.Y.: Columbia University Press.

Ardrey, R. 1966 *The Territorial Imperative*. New York: Atheneum Press.

Barrish, D. 1977 *Sociobiology and Behavior*. New York: Elsevier.

Brownmiller, S. 1975 *Against Our Will*. New York: Simon and Schuster.

Douglas, J., et. al. 1973 *Introduction to Sociology*. New York: The Free Press.

Eibl-Eibesfeldt, I. 1977 *Ethology: The Biology of Behavior*. New York: Holt, Rinehard and Winston.

Engels, F. nd *The Origin of the Family*. Boston, Mass.: New England Free Press.

Fox, R. 1971 "The Cultural Animal," in J.F. Eisenberg and W.S. Dillon, eds., *Man and Beast: Comparative Social Behavior*. Washington, D.C.: Smithsonian Institute Press.

Goodall, J. 1968 "The Behavior of Free-Living Chimpanzees in the Gombe Stream Reserve," *Animal Behavior Monographs* I (3):161-311.

_____ 1969 "Mother-Offspring Relationships in Free-Ranging Chimpanzees," in D. Morris, ed., *Primate Ethology*. Chicago: Aldine.

Halsey, A.H.(ed.) 1977 *Heredity and Environment*. New York: The Free Press.

Lancaster, J. 1978 "Carrying and Sharing in Human Evolution," Human Nature I (2):82-89.

Lorenz, K. 1966 *On Aggression*. New York: Harcourt, Brace, Inc.

Leakey, M. 1979 "Footprints in the Ashes of Time." In *National Geographic* Vol. 155, No. 4, April.

Leakey, R. and Lewin, R. Origins. New York: E.P. Dutton. 1977a

_____ People of the Lake. New York: Anchor Press/Doubleday. 1978b

Montague, M.F.A. Man and Aggression. London: Oxford University Press. 1968

Parsons, T. The Structure of Social Action. New York: The Free Press. 1968

Ritzer, G., et. al. Sociology. Boston, Mass.: Allyn and Bacon, Inc. 1979

Robertson, I. Sociology. New York: Worth Publ., Inc. 1977

Sjoberg, G. and Nett, R. A Methodology for Social Research. New York: Harper and Row. 1968

Spencer, M. Foundations of Modern Sociology. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1976

van den Berghe, P.L. Man in Society. New York: Elsevier. 1975

Wilson, E.O. On Human Nature. Cambridge, Mass.: Harvard University Press. 1978